Space Weather Forecast

Issued on Sunday 9 February 2025 at 01:11 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate flares likely throughout. Minor geomagnetic storm activity likely throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with one Moderate-class flare, at 08/0927 UTC from the complex region in the northwest.

Ten active regions remain on the Earth-facing disc. The majority of interest is in the northwest quadrant, with a cluster of entwined regions. The rearmost spot remains the largest and most complex region on the visible disc. The spots in the northwest have shown signs of decay in recent imagery, with their intermediate spots fading. The other regions within this cluster are close together and it is difficult to define the exact boundaries of each region. As such they are magnetically interconnected, with interaction between the various regions. The remaining regions on the disc are small and simple at present.

No significant coronal mass ejection (CME) were evident in available coronagraph imagery.

Solar Wind / Geomagnetic Activity: Solar winds remaind Slow over the past 24 hours. The Interplanetary Magnetic Field started weak before rising to Moderate by 08/0800 UTC. The north-south component, Bz, was at weak to moderate levels with some variability in direction. Geomagnetic activity was Quiet to Unsettled (Kp 0-3).

Energetic Particles / Solar Radiation: High energy proton flux remained at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate solar activity is expected to continue, with a slight chance of a strong flare, primarily from the cluster of regions in the northwest.

Solar Wind / Geomagnetic Activity: There is a slight chance of two glancing coronal mass ejections during Days 2 or 3 10-11 Feb. Solar winds are currently Slow. The next feature is a High Speed Stream which is expected to arrive during Day 1 (09 Feb), perhaps more likely during the second half of the day, lasting through much of the remainder of the period. Solar winds are expected to become elevated to strong.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.

Predominantly Quiet (Kp 0-2) geomagnetic activity is expected. Activity is then expected to increase during days 1 and 2 (09/10 Feb) due to the HSS from coronal hole ainfluence, perhaps combined with some limited CME influence, becoming Active to Minor storm (Kp 4-5) with a slight chance of Moderate storm intervals (Kp 6). This enhanced geomagentic activity likely continuing through the remaining days with Active to G1/Minor storms, and potential connection to further fast winds.

Energetic Particles / Solar Radiation: There is a slight chance of energetic particles rising above the S1/Minor radiation storm threshold as the cluster of sunspots in the northwest are now in a good position to connect with Earth, should there be further large flares.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	60	50	60	50
Strong	G3	No	5	5	10	5
Severe	G4	No	1	1	1	0
Extreme	G5	No	1	1	1	0

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	70	70	70	70
Very Active	R3-R5 (X Class)	No	10	10	20	20

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	20	20	20	20
Very Active	**≥ S3 ***	No	5	5	5	5
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.